

Effects of probiotics supplementation on bone mineral content and bone mass density

ABSTRACT

A few studies in animals and a study in humans showed a positive effect of probiotic on bone metabolism and bone mass density. Most of the investigated bacteria were *Lactobacillus* and *Bifidobacterium*. The positive results of the probiotics were supported by the high content of dietary calcium and the high amounts of supplemented probiotics. Some of the principal mechanisms include (1) increasing mineral solubility due to production of short chain fatty acids; (2) producing phytase enzyme by bacteria to overcome the effect of mineral depressed by phytate; (3) reducing intestinal inflammation followed by increasing bone mass density; (4) hydrolysing glycoside bond food in the intestines by *Lactobacillus* and *Bifidobacteria*. These mechanisms lead to increase bioavailability of the minerals. In conclusion, probiotics showed potential effects on bone metabolism through different mechanisms with outstanding results in the animal model. The results also showed that postmenopausal women who suffered from low bone mass density are potential targets to consume probiotics for increasing mineral bioavailability including calcium and consequently increasing bone mass density.

Keyword: Probiotic; Bone metabolism; Bone mass density; *Lactobacillus*; *Bifidobacteria*